

Request for Reconsideration  
U.S. Patent Application No. 09/730,708

### REMARKS

Reconsideration and continued examination of the above-identified application are respectfully requested.

At page 2 of the Office Action, the Examiner asserts that the restriction requirement is deemed proper and is made final.

At page 2 of the Office Action, the Examiner rejects claim 1 under 35 U.S.C. §102(b) as being anticipated by Austin (U.S. Patent No. 4,272,487). The Examiner maintains that Austin in column 4 and Fig. 1 teaches injecting "cool" combustion gas to shield the process gas. Additionally, the Examiner asserts that the applicant's previous argument that claim 1 requires the sheathing gas to be injected downstream is not persuasive, and claim 1 does not require this limitation. The Examiner then asserts that only the sheathing effect needs to be downstream. For the following reasons, this rejection is respectfully traversed.

Claim 1 of the present application recites a process for producing carbon black comprising introducing a fluid stream to sheath a process stream downstream from introduction of a feedstock into the process stream. In other words, the fluid stream of the present invention is introduced only after introduction of a feedstock into the process stream. Accordingly, the Examiner's assertion that the claims do not require the sheathing gas to be injected downstream from introduction of a feedstock into the process stream is incorrect.

Austin relates to a carbon black reactor with inner and outer hot combustion gas entries providing protective blanket and extra hot gases for conversion of feed. According to Austin, oil is immediately and intimately contacted with the hot combustion gases. Thus, the feedstock is not introduced after introduction of the combustion gas. In fact, as shown in Fig. 1 of Austin, both the

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feedstock and combustion gas are introduced at zone 4. Thus, Austin does not teach or suggest a fluid stream downstream from introduction of a feedstock into the process stream. Furthermore, the Examiner's assertion that only the sheathing effect needs to be downstream is incorrect. The effects of the fluid stream on the process stream depend on the point of introduction of the fluid stream. For example, depending on the introduction point of the fluid stream, the carbon black can have increased structure. Furthermore, the claimed method of introduction of the fluid stream minimizes refractory lining wear generally associated with the introduction of secondary fluid streams into a reactor. Accordingly, the rejection under 35 U.S.C. §102(b) over Austin should be withdrawn.

At page 2 of the Office Action, the Examiner also maintains the rejection of claims 1, 2, 6, 7, 9, and 10 under 35 U.S.C. §102(b) as being anticipated by Dahmen et al. (U.S. Patent No. 3,761,577). According to the Examiner, column 4 and Fig. 1 of Dahmen et al. shows blanketing process gas with a downstream combustion gas, injected axially. According to the Examiner, the widened portion can be considered a stage. Furthermore, the Examiner asserts that Dahmen et al. makes carbon black; therefore, carbon black formation conditions clearly exist in the reactor. The Examiner further asserts that it is not clear why the gas of Dahmen et al. is not equivalent to the present system, but concludes that sheathing is not required to have any particular effect in the claimed invention. For the following reasons, this rejection is respectfully traversed.

It is important for the Examiner to understand that the claimed invention introduces a fluid stream to sheath a process stream downstream from introduction of a feedstock into the process stream. According to page 6, lines 3-5 of the present application, the method of introduction of the fluid stream will minimize refractory lining wear generally associated with the introduction of secondary fluid streams into a reactor. Furthermore, according to page 9, lines 9-13 of the present

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application, the introduction of the fluid stream preferably results in the production of carbon blacks having increased structure, as reflected by an increased DBP absorption value, for a given iodine number ( $I_2No.$ ) surface area in comparison to carbon blacks produced utilizing similar process conditions in the absence of a fluid stream introduction. Finally, according to page 11, lines 12-14 of the present application, the step of sheathing the effluent stream will preferably divert the effluent stream from the walls of the third stage of the reactor, at least at the point of initial sheathing. Accordingly, sheathing the process stream provides many advantages and is an important feature of the claimed invention.

Dahmen et al. relates to a secondary combustion process and apparatus for the manufacture of carbon black. The reactor of Dahmen et al. includes a primary reaction zone, a secondary reaction zone, and a quench zone. According to Dahmen et al., a secondary reaction zone is established by introducing secondary hot combustion gases into the reactor through a plurality of small ports. Dahmen et al. does not teach or suggest the introduction of a stream of combustion gases (process stream) at a temperature sufficient to pyrolyze a carbon black yielding feedstock prior to introduction of the feedstock. Thus, Dahmen et al. does not show the presence of a process stream prior to introduction of a fluid stream which is introduced downstream from the feedstock into the process stream. Additionally, the hot combustion gas introduced into the secondary zone of Dahmen et al. is not equivalent to the fluid stream to sheath a process stream as recited in the claims of the present application. As stated earlier, the initiation of a high temperature combustion reaction in the first stage of a carbon black reactor creates a process stream because it initiates a reactive process before the feedstock is added. Dahmen et al. does not teach or suggest a process stream or fluid stream to sheath a process stream downstream from introduction of a feedstock into

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the process stream. As such, for the reasons set forth above, claims 1 and 6 are patentable. Claims 2, 7, 9, and 10 depend directly or indirectly on claims 1 or 6. Therefore, the reasons set forth above with respect to the patentability of claims 1 and 6 are equally applicable to claims 2, 7, 9, and 10. Accordingly, the rejection under 35 U.S.C. §102(b) over Dahmen et al. should be withdrawn.

Should the Examiner have any questions, he is encouraged to contact the undersigned by telephone.

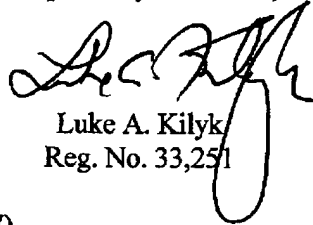
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**CONCLUSION**

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If any other fees are due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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